Geometry

Geometry

Students in Geometry understand logical reasoning. They analyze relationships in lines, triangles, quadrilaterals, polygons and circles. They construct geometric figures and analyze three-dimensional figures.

Examples: Prove the Pythagorean Theorem Construct a square

Algebra

Students use algebra and the coordinate plane to explore geometry. They find equations for geometric figures such as parallel lines and circles.

Example: Find a line perpendicular to $y = -\frac{4}{3}x - 1$

Write the equation of a circle with radius 6, centered at (2, 5)

Trigonometry

Students understand right triangle trigonometry and use relationships to solve for missing sides and angles of right triangles.

Examples: In a 45-45-90 right triangle, if one leg measures 6 in, what is the measure of the other two sides?

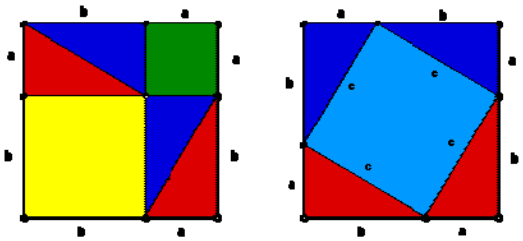
Find $\sin 60^o$

Measurement

Students find and use formulas for perimeter, area, surface area and volume for a variety of figures. They will solve problems using geometric reasoning.

Examples: Find the distance between (-3, 7) and (4, 2)

Find the volume of a cone with a radius of 6 in. and a height of 8 in.

Geometry	
Prove the Pythagorean Theorem: (one possibility)  $2ab + a^2 + b^2 = 4(\frac{1}{2}ab) + c^2$ $2ab + a^2 + b^2 = 2ab + c^2$ $a^2 + b^2 = c^2$	Construct a square: This can be done with • Compass and Straight edge • Mira • Geometry technology such as the Geometer's Sketchpad • Patty Paper
Algebra	
Find a line perpendicular to $y = -\frac{4}{3}x - 1$ $m = \frac{-4}{3}$ Any line with slope $\frac{3}{4}$ will do such as: y= $\frac{3}{4}x + 2$ or $3x - 4y = 4$	Write the equation of a circle with radius 6, centered at (2, 5) $(x-h)^2 + (y-k)^2 = r^2$ $(x-2)^2 + (y-5)^2 = 36$
Trigonometry	
In a 45-45-90 right triangle, if one leg measures 6 in, what is the measure of the other two sides? The other leg measures 6 in. The hypotenuse measures $6\sqrt{2}$ in.	Find $\sin 60^o$ Using the unit circle: $\frac{\sqrt{3}}{2}$ Using a calculator: .866025
Measurement	
Find the distance between (-3, 7) and (4, 2) $\sqrt{(2-7)^2 + \left(4-(-3)\right)^2} = \sqrt{74} \approx 8.6$	Find the volume of a cone with a radius of 6 in. and a height of 8 in. $V = \frac{1}{3}\pi r^2 h$ $\frac{1}{3}\pi(6)^2(8) = 96\pi$